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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,425	08/21/2003	Patrick Jozef Wilhelmus Deckers	903-83 CIP/PCT/US	8875

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EXAMINER	
LEE, RIP A	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,425	DECKERS ET AL.	
	Examiner	Art Unit	
	Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☒ Claim(s) *4, 11, 17 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08202003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4 and 17 are objected to because of the following informalities: Consistent with the existing claim language, replace the term "aromatic entity" to "aromatic group." Appropriate correction is required.

2. Claims 11 and 24 are objected to because of the following informalities: The term "capable" lends uncertainty to the claim for it is not clear whether the activator actually participates in the claimed process. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

5. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 provides for the use of a catalyst system, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. Since claims 2-13 depend from claim 1, they are subsumed under the rejection.

Claims 1-14 are also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 15-22 and are rejected under 35 U.S.C. 102(b) as being anticipated by Saßmannshausen *et al.* (*J. Organomet. Chem.*, 1999).

The journal article teaches a catalyst prepared from monocyclopentadienyl titanium complexes in which the cyclopentadiene bears an alkylaryl substituent. Representative compounds, $(C_5H_5CMe_2Ph)TiCl_3$ (**1a**), $(C_5H_5CMe_2Ph)TiMe_3$ (**1b**),[†] $(C_5H_5SiMe_2Ph)TiCl_3$ (**4a**), and $(C_5H_5SiMe_2Ph)TiMe_3$ (**4b**), have been tabulated on page 86. Clearly, these half-sandwich complexes contain the requisite structural features set forth in the present claims. The metal complexes are combined with standard activators such as $B(C_6F_5)_3$ or $[Ph_3C][B(C_6F_5)_4]$ (page 86, section 2.1) to form the active catalyst. As such, the catalyst of the present claims is disclosed entirely in the teachings of Saßmannshausen *et al.*

With respect to the claim language, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See MPEP § 2111.02. As elucidated above, there is no structural difference between the claimed catalyst and that of the prior art. Consequently, the present claims are anticipated by the prior art.

[†] The formula has a typographical error; one gleans from ^1H NMR data that the alkylaryl group is CMe_2Ph, not CMePh.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saßmannshausen *et al.* in view of U.S. Patent No. 5,043,515 to Slaugh *et al.*

The discussion of the disclosure of Saßmannshausen *et al.* from paragraph 7 of this office action is incorporated here by reference. The article teaches use of non-polymeric activators, but it not discuss use of aluminoxanes as the activator for the transition metal complex. Aluminoxanes are used routinely in the art, and Slaugh *et al.* shows that these activators are combined with transition metal complexes to form active catalysts for olefin oligomerization (see discussion in col. 3 – col. 4). It would have been obvious to one of ordinary skill in the art to substitute the borate activators of Saßmannshausen *et al.* with an aluminoxane-based cocatalyst because the prior art shows that these are functionally equivalent materials. One of ordinary skill in the art, then, would have expected functionally

equivalent activators to yield an equally useful catalyst. The combination is obvious because both references relate to oligomerization of olefins. One of ordinary skill in the art would have found it obvious to arrive at the claimed metal to aluminum mole ratio because Slaugh *et al.* also teaches use of a M/Al ratio of 1/100 (col. 5, line 23).

11. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saßmannshausen *et al.* in view of WO 96/27439 to Horton *et al.*

Saßmannshausen *et al.* does not teach use of scavengers in conjunction with the catalyst, however, one of ordinary skill in the art would glean that the catalyst of the prior art is prepared under rigorously dry and inert conditions (see experimental, page 90, section 3.1). One of ordinary skill in the art would have found it obvious to use a scavenger in an industrial scale reactor so as to purge the reactor from moisture and impurities that would destroy the catalyst. This methodology is well known in the art. As shown in Horton *et al.*, organoaluminum compounds are not required for catalytic activity, but they are used for scavenging agents (page 9, lines 13-18). Triisobutylalumium is exemplary (page 9, line 21). Thus, it would have been obvious to one having ordinary skill in the art to use a scavenger such as iBu$_3$Al, as per Horton *et al.*, in conjunction with the catalyst of Saßmannshausen *et al.* in order to remove impurities and thereby minimize catalyst deactivation. The combination is obvious because both references relate to olefin oligomerization catalysts.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saßmannshausen *et al.* in view of EP 696 263 to Doyle *et al.*

Although use of inorganic supports for improving catalyst activity is well established in the art, Saßmannshausen *et al.* does not teach use of a support. Doyle *et al.* shows that olefin oligomerization catalysts can be loaded onto a solid carrier such as silica or alumina (page 9, lines 23-27). Thus, it would have been obvious to one having ordinary skill in the art to use a solid support such as silica for the catalyst of Saßmannshausen *et al.* because such a step is shown in the prior art to work for oligomerization catalysts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Rip A. Lee

December 7, 2004